Jun 11th, 2:10 PM - 2:30 PM

Impaired waterbody restoration utilizing electric fish barrier technology to exclude invasive carp

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Impaired water body restoration utilizing electric fish barrier technology to exclude carp

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Vancouver, WA USA

www.smith-root.com

Engineering and Ecohydrology for Fish Passage (June 9-11, 2014)

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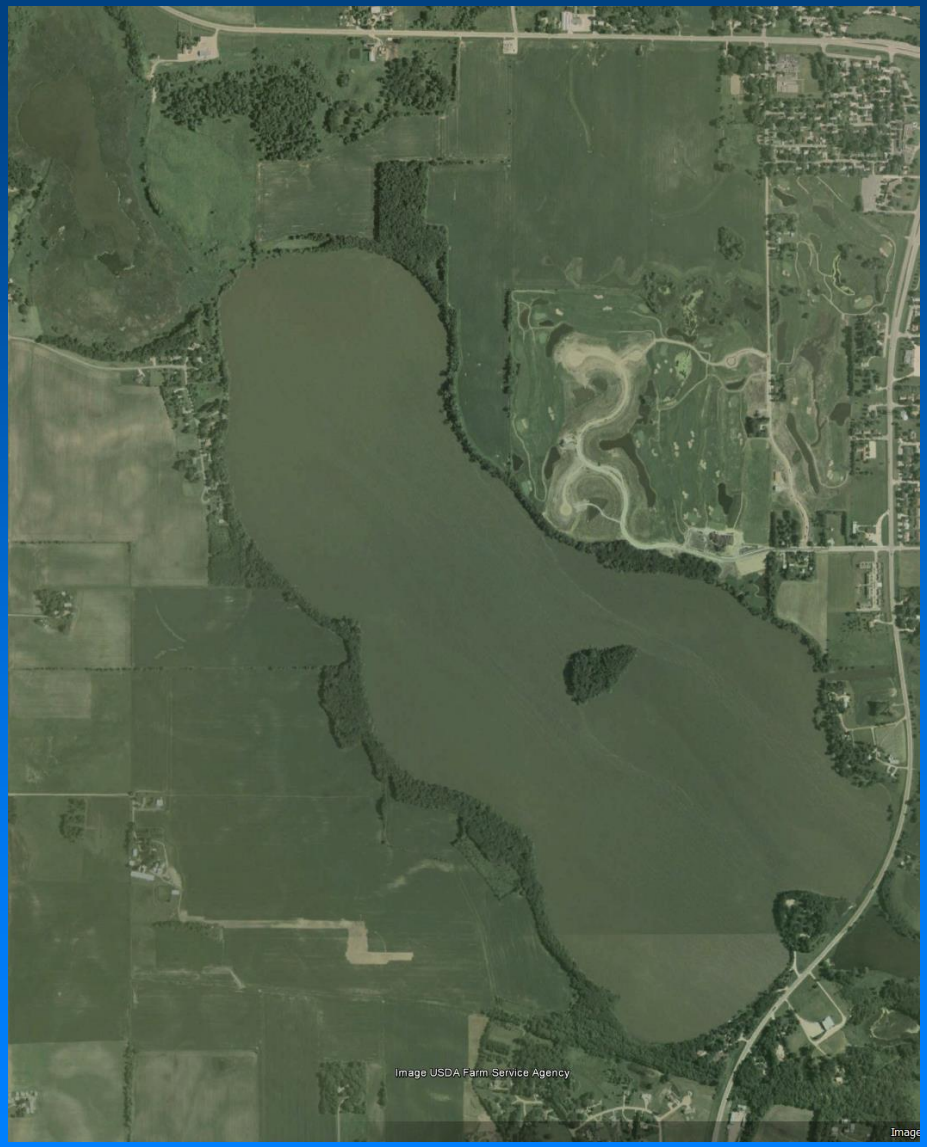
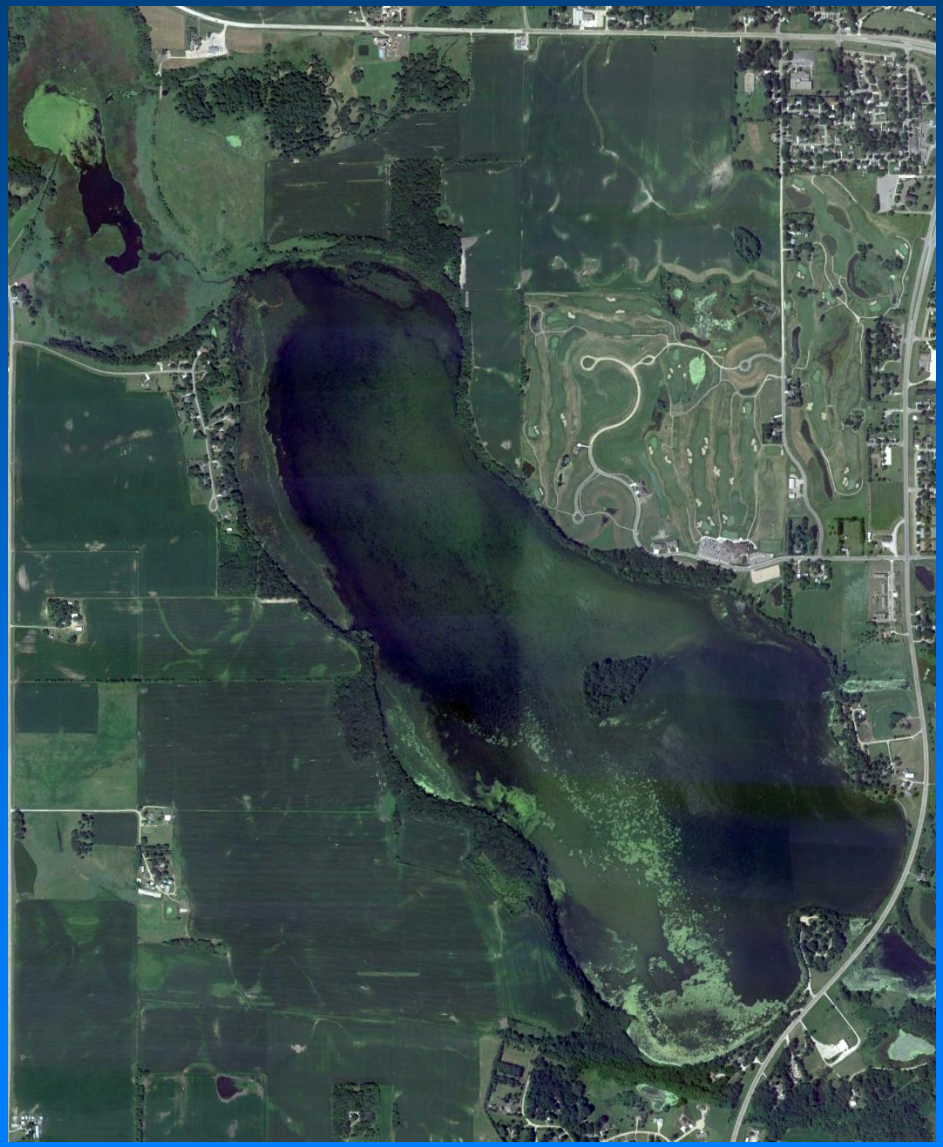
Technology For Fisheries Conservation

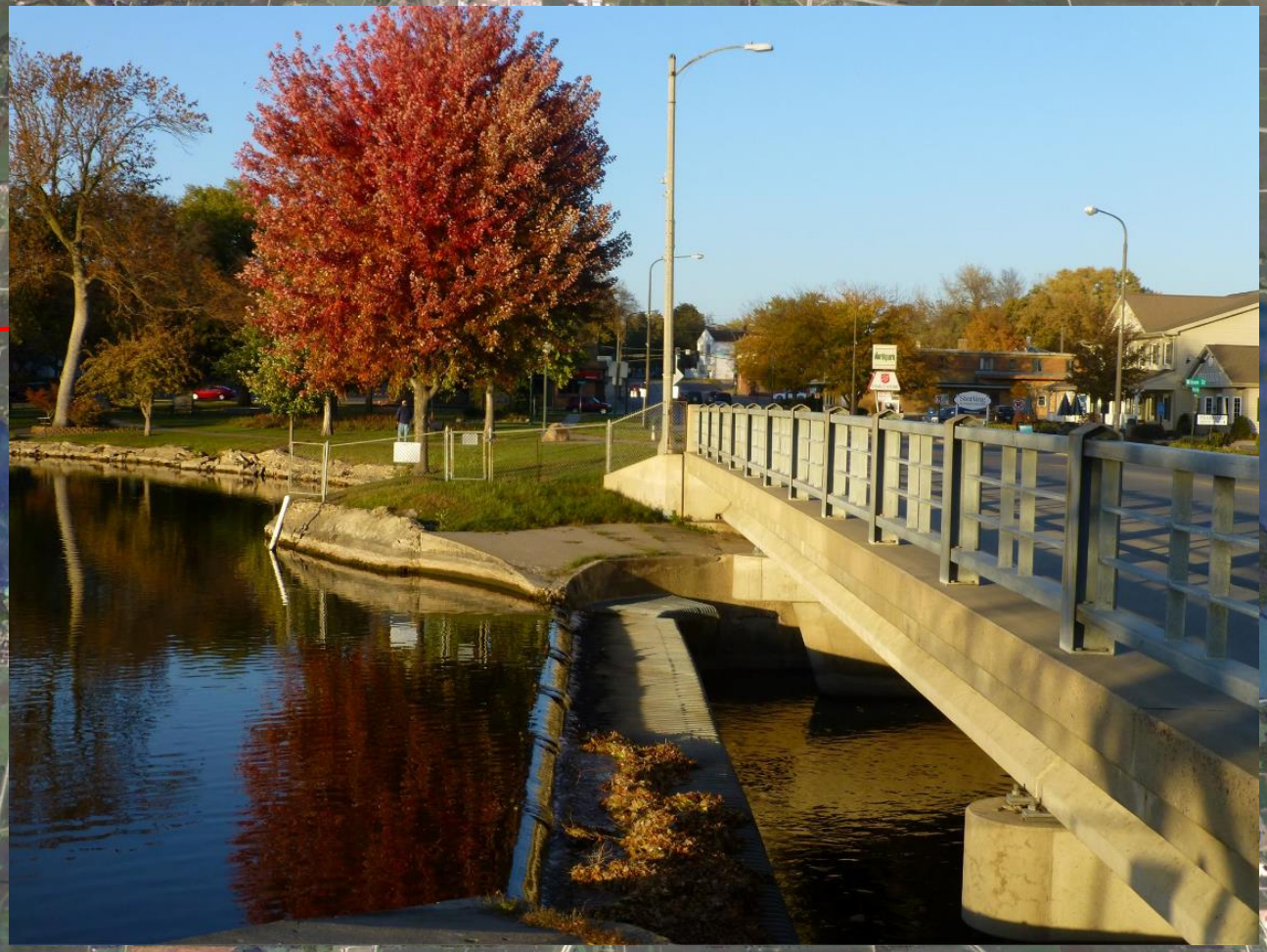
Shallow lake transformation (Google Maps)

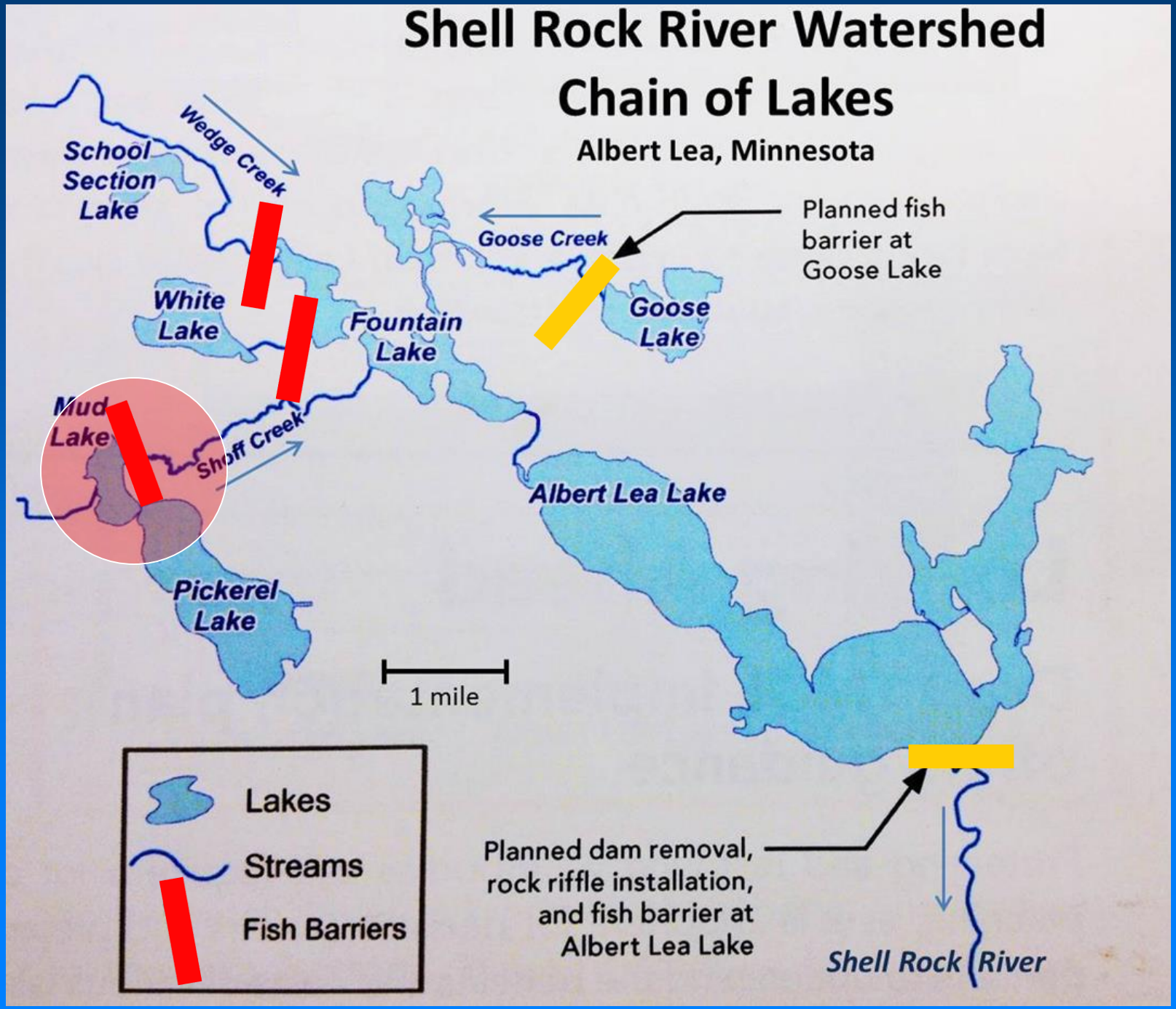




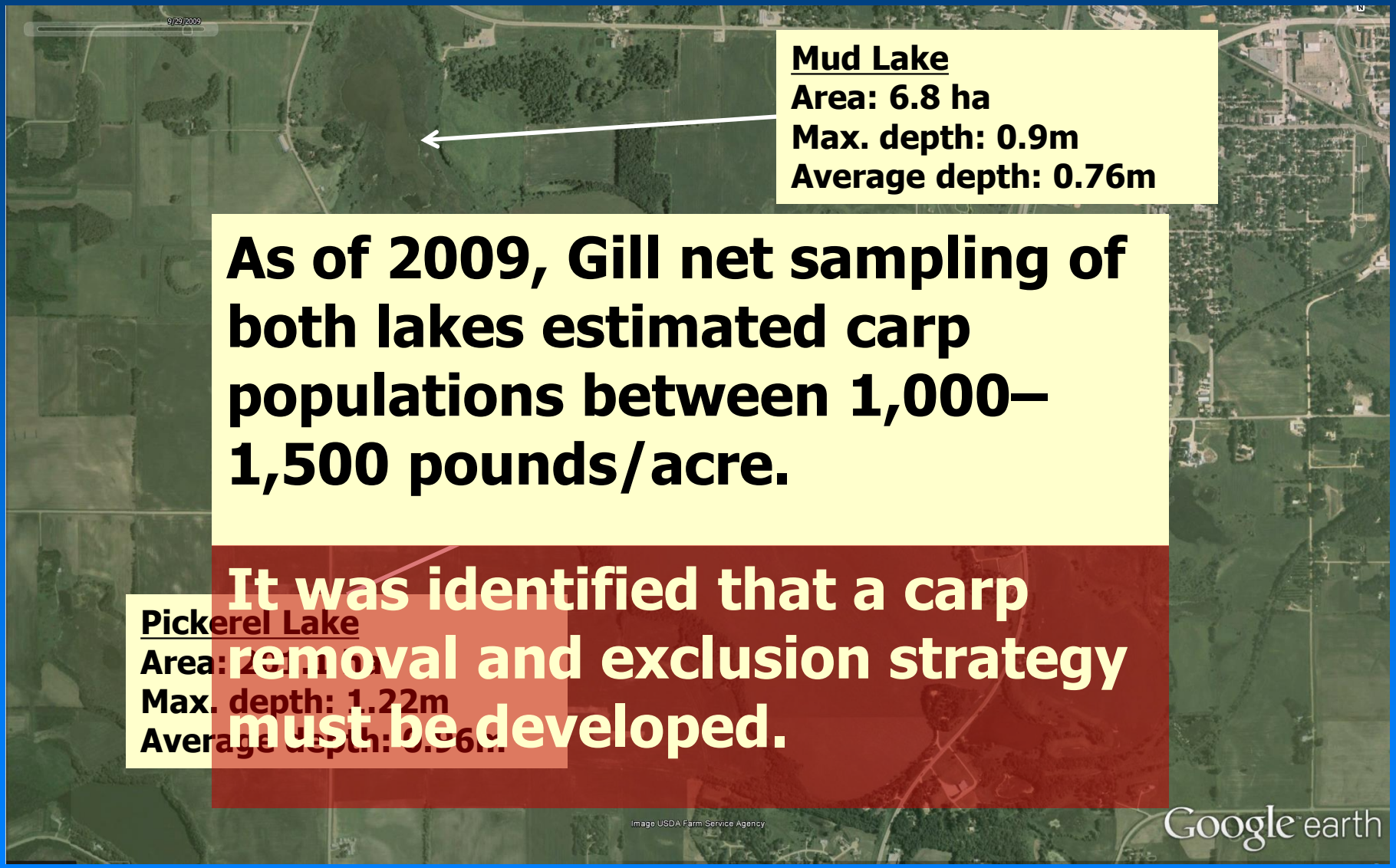
Google Earth Images

Shell Rock River Watershed District

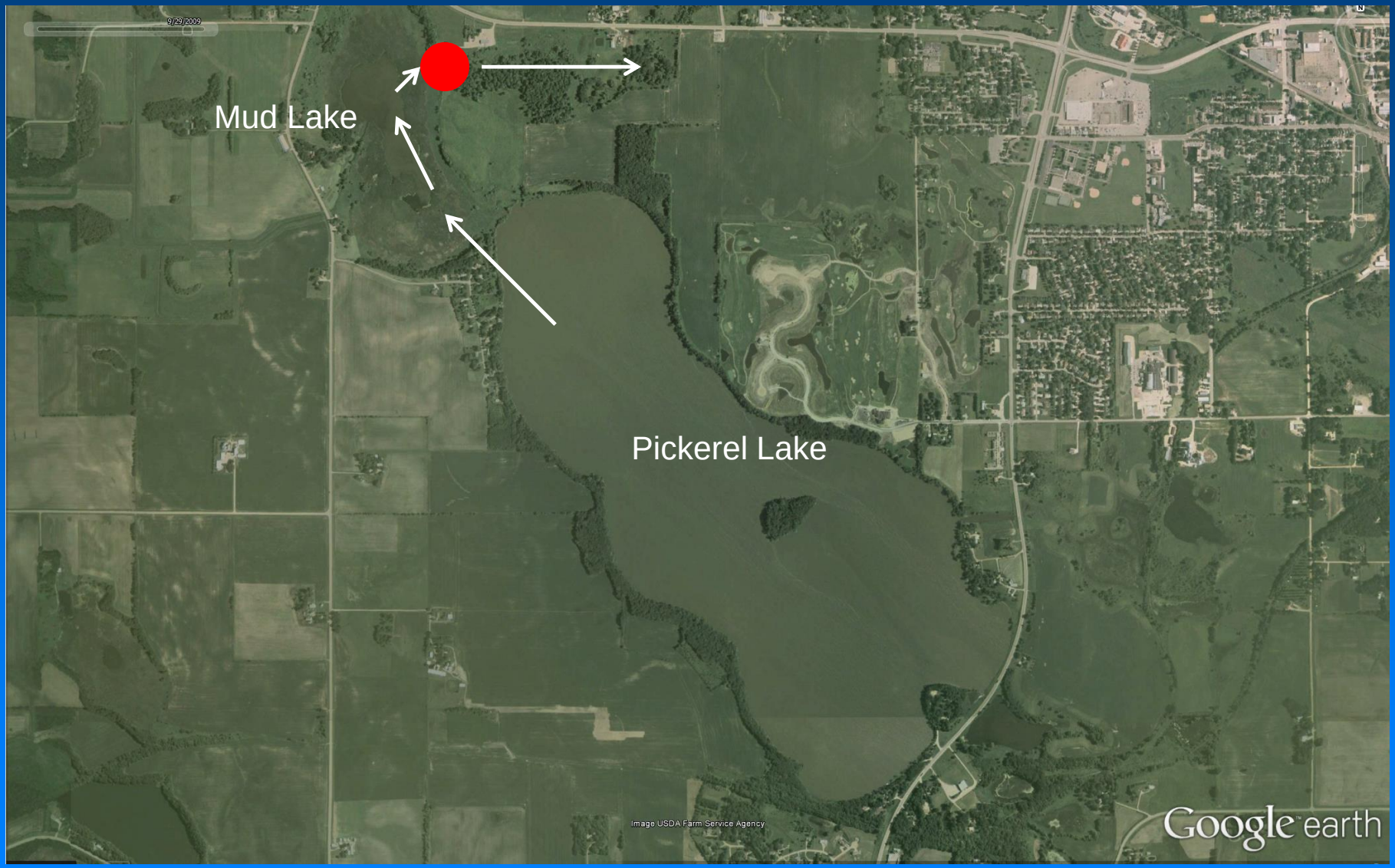



Shell Rock River Watershed
Chain of Lakes
Albert Lea, Minnesota
School Section Lake
Wedge Creek
Goose Creek
Planned fish barrier at Goose Lake
White Lake
Fountain Lake
Goose Lake
Mud Lake
Shoff Creek
Albert Lea Lake
Pickerel Lake
1 mile
Lakes
Streams
Fish Barriers
Planned dam removal, rock riffle installation, and fish barrier at Albert Lea Lake
Shell Rock River

Mud and Pickerel Lake Characteristics



Flow Characteristics



Mud Lake Electric Fish Barrier Commissioned Spring 2009

Mud Lake Electric Fish Barrier Commissioned Spring 2009

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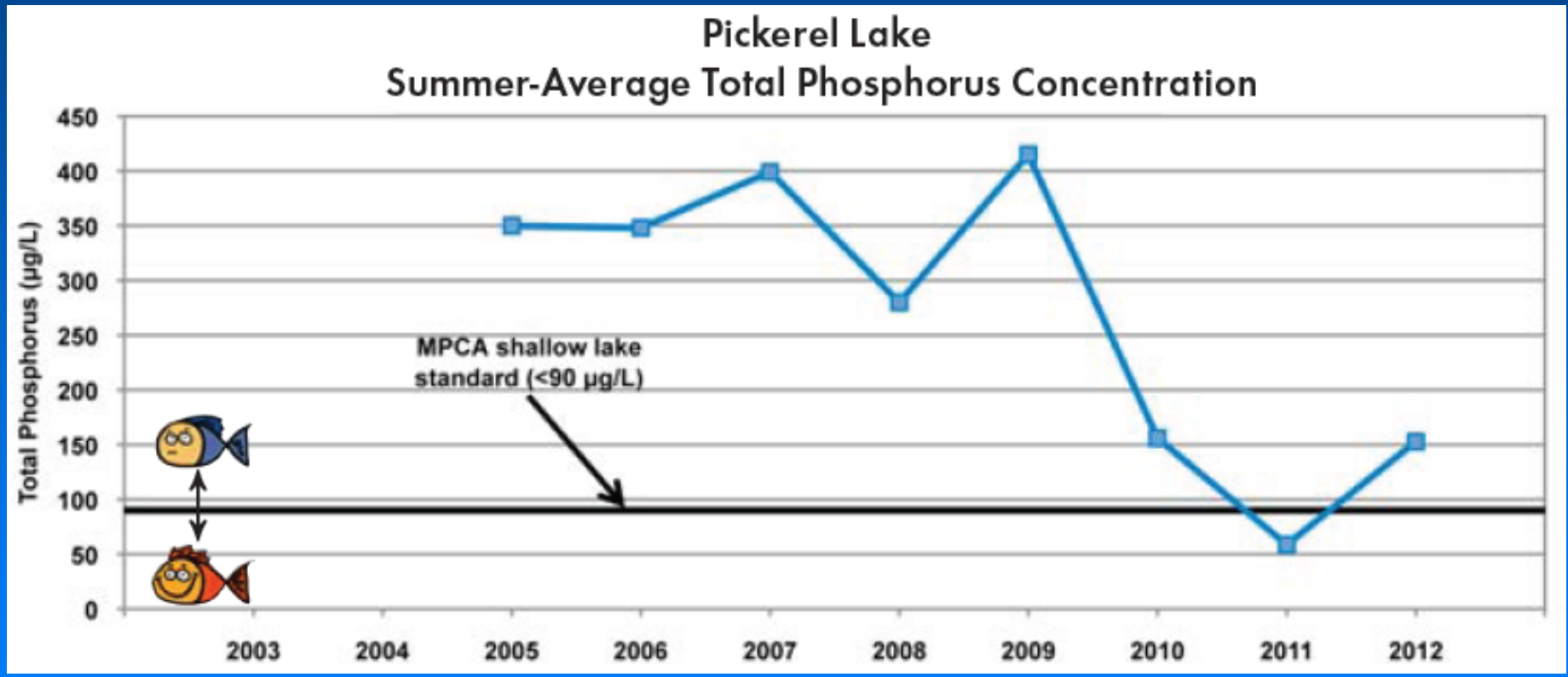
Mud & Pickerel Lake: Google Earth Imagery

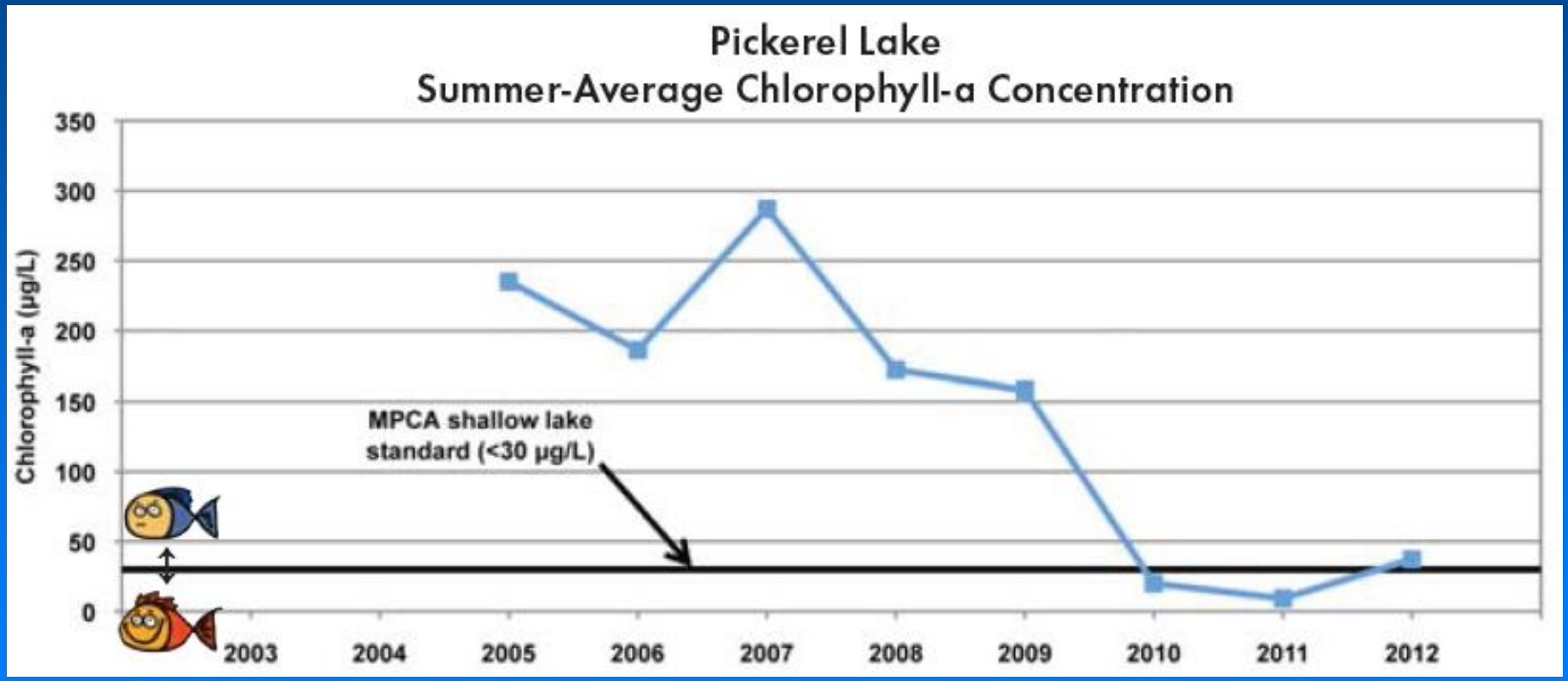
Water Clarity test on 10/1/2009

Rotenone Treatment: October 2009

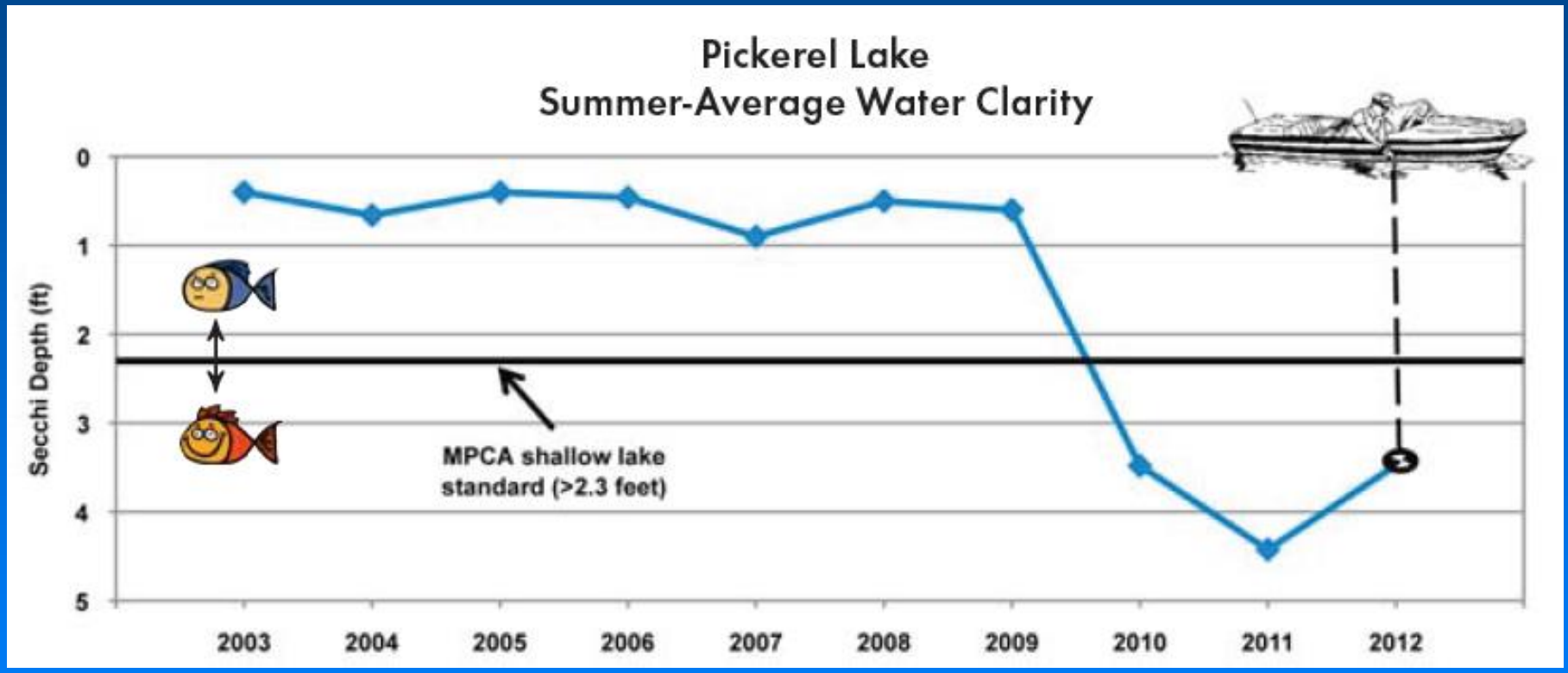
Total Phosphorous reduction



Chlorophyll a reduction



Quadrupled Water Clarity



Pickerel Lake: Latest Fish Survey Sampling

Fish Sampled for the 2013 Survey Year

Species	Gear Used	Number of fish per net		Average Fish Weight (lbs)	Normal Range (lbs)
		Caught	Normal Range		
Black Bullhead	Trap net	42.36	11.5 - 132.6	0.27	0.2 - 0.4
	Gill net	281.50	30.3 - 150.6	0.19	0.2 - 0.4
Black Crappie	Trap net	2.82	1.2 - 20.5	0.42	0.2 - 0.5
	Gill net				
Bluegill	Trap net				
	Gill net				
Green Sunfish	Trap net				
Hybrid Sunfish	Trap net				
	Gill net				
Northern Pike	Trap net				
	Gill net				
Yellow Perch	Trap net				
	Gill net				

Normal Ranges represent t

Communications MNDNR and local SRRWD district biologists says that the most recent fish survey found zero common carp. The survey performed included two experimental gillnets and 12 modified fyke nets.

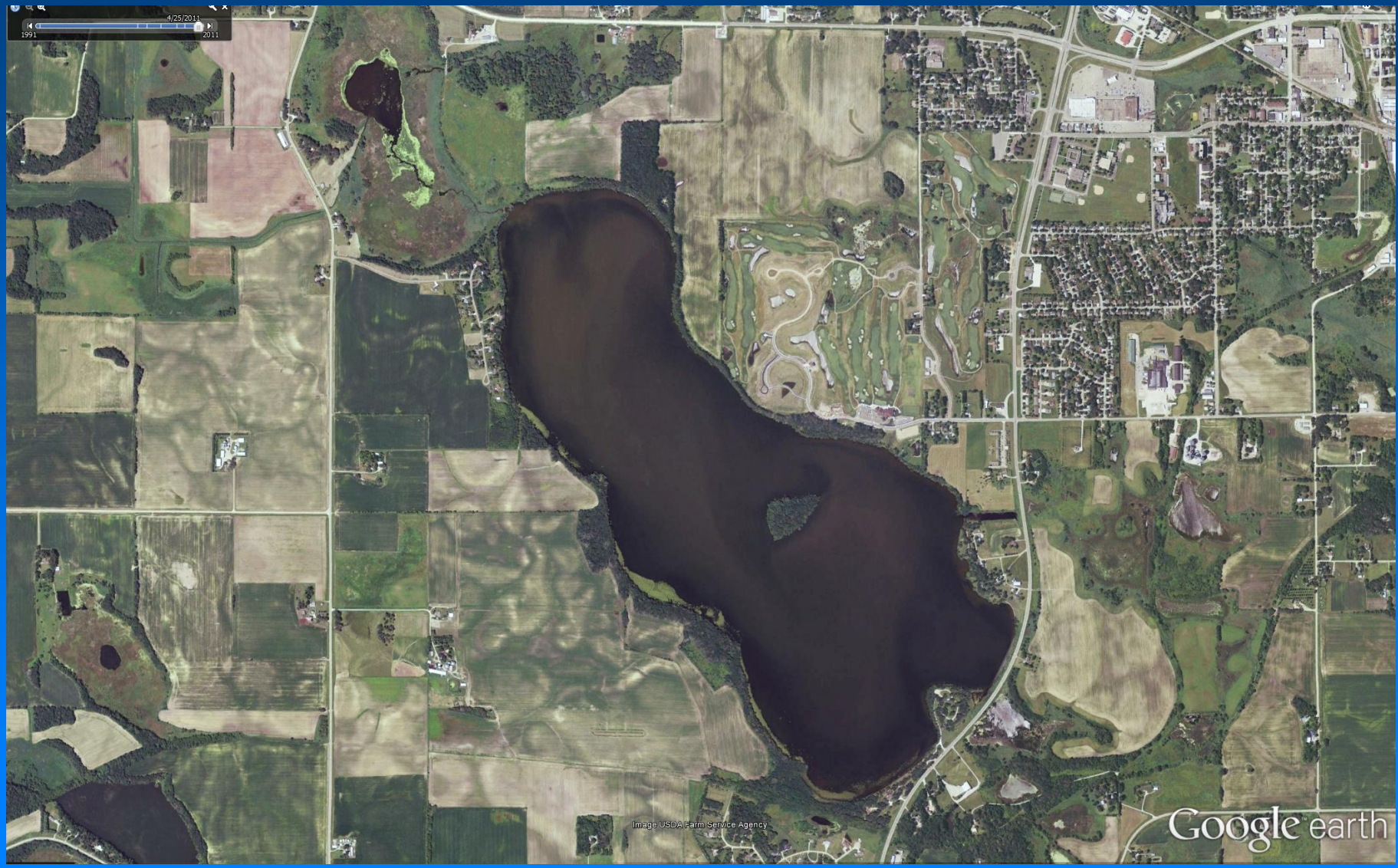
Length of Selected Speci

Species									
	0-5								
black bullhead	370								
black crappie	0								
bluegill	41								
green sunfish	20								
hybrid sunfish	7								
northern pike	0	0	0	3	14	10	13	8	48
yellow perch	27	68	21	6	0	0	0	0	127

Courtesy of Minnesota Department of Natural Resources: Lake Finder

Water Clarity test on 9/3/2010

Mud & Pickerel Lake: Aerial Imagery 4/2011



Mud & Pickerel Lake: Aerial Imagery 8/2011

Mud Lake GFFB: July 2012